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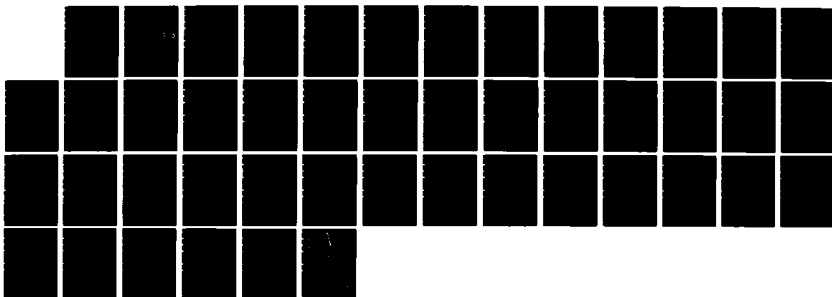
AIR FORCE INTEGRATED READINESS MEASUREMENT SYSTEM
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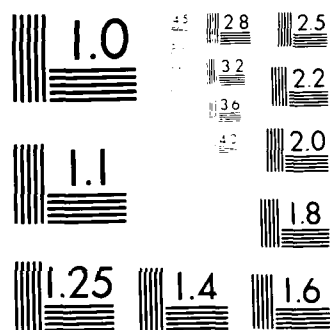
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AIR FORCE INTEGRATED READINESS MEASUREMENT SYSTEM (AFIRMS)

AFIRMS MANAGEMENT PLAN

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AUG 04 1986
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SofTech, Inc.
2000 N. Beauregard St.
Alexandria, VA 22311-1794

September 1985

Prepared for

United States Air Force
Readiness Assessment Group

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TABLE OF CONTENTS

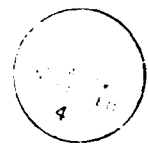
		<u>Page</u>
SECTION 1.	GENERAL	1-1
1.1	Purpose	1-1
1.2	Objectives	1-1
1.3	Scope	1-1
1.4	Abbreviations and Acronyms	1-2
1.5	Program References	1-4
SECTION 2.	INTRODUCTION TO AFIRMS	2-1
2.1	AFIRMS Synopsis	2-1
2.1.1	Key AFIRMS Concepts	2-1
2.1.2	AFIRMS Functions	2-2
2.2	AFIRMS Documentation	2-3
SECTION 3.	SUMMARY OF THE AFIRMS MANAGEMENT PLAN	3-1
3.1	Concept	3-1
3.2	Program Organization	3-1
3.3	Management Functions	3-4
SECTION 4.	PLANNING AFIRMS	4-1
4.1	Planning Objectives	4-1
4.2	Office of Primary Responsibility	4-1
4.3	Steering Committee	4-1
4.3.1	Program Management Review	4-2
4.3.2	Configuration Control Board	4-2
4.3.3	Configuration Requirements Committee	4-2
4.4	Functional Baseline	4-3
4.5	Configuration Identification	4-4
4.5.1	AFIRMS Functionality Modules	4-5
4.5.2	AFIRMS Documentation	4-6
4.5.3	AFIRMS Product Code	4-7
4.5.4	AFIRMS System Software	4-7
4.5.5	AFIRMS Hardware	4-8
SECTION 5.	ORGANIZING AFIRMS	5-1
5.1	Organizing Objectives	5-1
5.2	Office of Primary Responsibility	5-1
5.3	Steering Committee	5-1
5.4	Allocated Baseline	5-2
5.5	Configuration Control	5-2
5.5.1	AFIRMS Software and Hardware	5-3
5.5.2	AFIRMS Documentation	5-4

TABLE OF CONTENTS (Continued)

		<u>Page</u>
SECTION 6.	DIRECTING AFIRMS	6-1
6.1	Directing Objectives	6-1
6.2	Program Management Office	6-1
6.3	Execution of AFIRMS	6-1
6.3.1	AFIRMS Agents	6-3
6.3.2	Execution Actions	6-3
6.3.3	Execution Status	6-5
6.4	Product Baseline	6-5
6.5	Configuration Control	6-6
6.5.1	Software	6-6
6.5.2	AFIRMS Documentation	6-7
6.5.3	Hardware	6-7
6.6	Technical Direction	6-7
SECTION 7.	CONTROLLING AFIRMS	7-1
7.1	Controlling Objectives	7-1
7.2	AFIRMS Program Library	7-1
7.3	AFIRMS Configuration Status Accounting System (CSAS)	7-2
7.4	Change Control	7-3
7.4.1	Problem/Action Reports (PAR)	7-3
7.4.2	Engineering Change Proposals (ECP)	7-5
7.5	Auditing Configuration Status	7-5
7.6	Technical Control	7-6
ANNEX A.	PROGRAM MANAGEMENT MILESTONES	TBP
B.	EVOLUTIONARY IMPLEMENTATION PLAN (EIP)	PSC
C.	CONFIGURATION MANAGEMENT SUPPORT PLAN	TBP
D.	SYSTEMS INTERFACE SUPPORT PLAN	TBP
E.	SECURITY SUPPORT PLAN	TBP
F.	TRAINING SUPPORT PLAN	TBP
G.	MAINTENANCE SUPPORT PLAN	TBP
H.	MANPOWER SUPPORT PLAN	TBP

PSC = Published under separate cover
TBP = To Be Published

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LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
3-1	AFIRMS Program Functional Organization	3-2
3-2	Management Time Focus	3-5
5-1	AFIRMS Configuration Items	5-5
6-1	AFIRMS Management Schema	6-4

SECTION 1. GENERAL

1.1 Purpose. The purpose of the AFIRMS Management Plan is to identify the requirements for developing, coordinating, and executing the AFIRMS Evolutionary Implementation Plan (EIP) as well as the AFIRMS support plans.

1.2 Objectives. The objectives of the AFIRMS Management Plan are to:

- Provide for centralized control and decentralized execution of AFIRMS development, implementation, and operation.
- Specify the technical management tasks required for AFIRMS program development.
- Assign responsibilities for accomplishing each of these tasks.
- Focus program management activities on the preparation and execution of the AFIRMS EIP and related support plans.
- Specify support plans required for the AFIRMS program.
- Assign responsibilities for management plan actions.

1.3 Scope. The AFIRMS Management Plan provides the top level, integrative frame of reference for the AFIRMS Program. As such, it serves as the AFIRMS Information Systems Program Plan (ISPP) by providing overall organization, management milestones, and task responsibilities for the development of AFIRMS. The AFIRMS Management Plan focuses on the processes which provide technical and administrative control of the program. Planning, Programming, and Budgeting System (PPBS) actions and Program Objectives Memorandum (POM) requirements are not included in this Plan.

The AFIRMS Management Plan consists of the basic document and Annexes A through H. Annex A provides the overall schedule of management reviews and program milestones. It does not include the specific software development or hardware acquisition schedules nor does it set forth support activity scheduling such as the training schedules or the test/acceptance/turnover schedules. Such technical schedules are included in the Evolutionary

Implementation Plan master schedule and the schedules of the individual Segment Plans. Annexes B through H are technical plans required to support the AFIRMS program. These annexes detail specific requirements, responsibilities, procedures, or policies that apply throughout the AFIRMS program. The two most important annexes are the Evolutionary Implementation Plan (Annex B) and the Configuration Management Support Plan (Annex C) since the former provides the AFIRMS "route map" and the latter provides the AFIRMS "checkpoints." System Interface actions, specifications, and schedules are contained in the Systems Interface Support Plan (Annex D). This plan identifies target Air Force standard systems as well as MAJCOM unique systems with which AFIRMS is to interface. Other annexes provide support plans for key AFIRMS issues such as security (Annex E), training (Annex F), maintenance (Annex G), and manpower (Annex H).

1.4 Abbreviations and Acronyms.

AAC	-	Alaskan Air Command
AF	-	Air Force
AF/SI	-	Air Force Information Systems
AF/SISC	-	Air Force Standard Information Systems Center
AF/XOO	-	Air Force Directorate of Operations
AFIRMS	-	Air Force Integrated Readiness Measurement System
AFLC	-	Air Force Logistics Command
AFR	-	Air Force Regulation
AFR	-	Air Force Reserves
ANG	-	Air National Guard
ATO	-	Air Tasking Order
CCB	-	Configuration Control Board
CFMS	-	Combat Fuels Management System
CII	-	Configuration Item Index
CRC	-	Configuration Requirements Committee
CSAS	-	Configuration Status Accounting System

CSMS - Combat Supplies Management System
 DRD - Data Requirements Document
 EA - Economic Analysis
 ECP - Engineering Change Proposal
 EIP - Evolutionary Implementation Plan
 FD - Functional Description
 HQ - Headquarters
 ISPP - Information Systems Program Plan
 JCS - Joint Chiefs of Staff
 LPP - Learning Prototype Phase of AFIRMS
 MAC - Military Airlift Command
 MAJCOM - Major Command
 OPlan - Operations Plan
 OPR - Office of Primary Responsibility
 PACAF - Pacific Air Forces
 PAO - Program Action Officer
 PAR - Problem Action Report
 PD - Product Descriptions
 PMD - Program Management Directive
 PMO - Program Management Office
 POM - Program Objectives Memorandum
 PPBS - Planning, Programming, and Budgeting System
 PSC - Published Under Separate Cover
 QA - Quality Assurance
 SAC - Strategic Airlift Command
 SOA - Separate Operating Agency
 SS - System Specification
 SSR - System Status Review
 TBP - To Be Published
 USAF - United States Air Force
 USAFE - United States Air Force, Europe
 WMP - War Mobilization Plan
 WSMIS - Weapons System Management Information System

1.5 Program References.

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- b. AFIRMS Data Requirements Document, Final, SofTech, Contract No. F49642-83-C-0022, 31 May 1985. (Unclassified)
- c. AFIRMS Economic Analysis, Final, SofTech, Contract No. F49642-83-C-0022, 31 May 1985. (Unclassified)
- d. AFIRMS Evolutionary Implementation Plan, Final, SofTech, Contract No. F49642-83-C-0022, 31 May 1985. (Unclassified)
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- z. MIL-STD-480 Configuration Control-Engineering Changes, Deviations, and Waivers.
- aa. MIL-STD-483 Configuration Management Practices for Systems, Equipment, Munitions, and Computer Programs.
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SECTION 2. INTRODUCTION TO AFIRMS

This section provides a brief introduction to the Air Force Integrated Readiness Measurement System (AFIRMS). A more complete description is provided in the AFIRMS Functional Description.

2.1 AFIRMS Synopsis. Accurate assessment of force readiness and sustainability has been a constant concern of Air Force Commanders and their staffs. This concern has been supported by an intensified interest in military capability (readiness, sustainability, force structure, and modernization as defined in JCS MOP 172) throughout the Department of Defense.

In response, the Air Force Directorate of Operations and Readiness initiated the AFIRMS Program. AFIRMS is specifically designed to provide Air Force Commanders with a complete, timely and accurate assessment of their combat capability (readiness and sustainability as defined in JCS MOP 172).

2.1.1 Key AFIRMS Concepts. AFIRMS is an automated, tasking based, capability assessment system. As such, AFIRMS evaluates unit and force capability to perform tasked missions based on the availability of specific resources.

a. The conceptual requirements for AFIRMS are two-fold:

- (1) Assessment of combat capability against specific tasking. The user can assess unit/force combat capability against any planned or ad hoc tasking, e.g., War Mobilization Plan (WMP), Operation Plan (Oplan), Fragmentary Order, Air Tasking Order (ATO), Contingency Plan, etc.
- (2) Assessment of combat capability based on budget appropriations. AFIRMS provides a tool for computing long-term readiness and sustainability trends, spanning two to six fiscal years. This tool permits comparison of readiness and sustainability by fiscal year and can therefore highlight the impact of appropriation changes. Thus, changes in funding are related to

changes in force readiness and sustainability. Also, senior Air Force decision makers are supported during budget deliberations and Air Force budget allocations.

b. AFIRMS implementation has two key concepts:

- (1) Integrated approach to tasking based capability assessments. AFIRMS has two integrative dimensions. First, all applicable resources and their usage interactions are considered. For example, in sortie capability assessment, AFIRMS evaluates capability in terms of all four essential resource types (aircrew, aircraft, munitions, fuel), their interdependencies, and their generative components (such as spares for aircraft, training qualifications for aircrew, load crews for munitions, and hot pits for fuel). Second, other automated systems (such as the Combat Supplies Management System (CSMS), Combat Fuels Management System (CFMS), Weapon System Management Information System (WSMIS), etc.) outputs are integrated into capability assessment calculations through system interfaces between those systems and AFIRMS.
- (2) Data Quality Assurance. Capability assessment is no better than the data upon which it is based. Therefore, AFIRMS emphasizes a user orientation toward quality assurance of source data. Unit and other data input level users are provided effective tools to accomplish their daily activities and therefore develop a vested interest in AFIRMS data currency and validity. Capability assessment data can then be extracted for use by higher or parallel users with maximum confidence in its validity.

2.1.2 AFIRMS Functions. Four basic AFIRMS functions combine to assess readiness capability:

- a. Translate Tasking. As a tasking based capability assessment system, tasking must be converted into a standard format recognized by AFIRMS. Tasking is defined in AFIRMS to the unit level and may consist of actual tasking, standard tasking, or contingency tasking. Any of these taskings can be defined within specified WMP or OPlan constraints, at the option of the user. Likewise, the tasking may be defined by the user for present, historic or future requirements.
- b. Define Resources. The resource definition function of AFIRMS ensures that information about inventory status is available and accurate. Wherever possible, this data is obtained by interface with other functional systems. As with tasking, resource information can be defined for actual, hypothetical, or contingency situations, either present, historic, or future.

- c. Determine Ability to Perform. Determining the force's ability to perform is the essential function of AFIRMS. The tasking and resource data are processed to determine how much of the specified tasking can be accomplished with the resources available. Ability to perform is evaluated in terms of the task metric (sorties, etc.) and the cost metric (dollars) to provide readiness/sustainability and dollars to readiness assessments.
- d. Aggregate, Analyze and Present Data. Aggregation, analysis and presentation ensure the proper grouping and display of data to provide useful information at the unit, major command and HQ USAF. Aggregation refers to the creation of a composite understanding of capability for several units.

2.2 AFIRMS Documentation. A set of nine types of documents describes AFIRMS. A list of these AFIRMS documents is provided below along with a short description of the particular aspects of AFIRMS which are addressed by each document.

- a. Functional Description (FD). The FD provides the description of AFIRMS concepts in user terms. It is the baseline document which ties the AFIRMS documents together.
- b. Economic Analysis (EA). The EA states AFIRMS estimated costs. It explains the cost factors of AFIRMS implementation alternatives and states the recommended alternative.
- c. AFIRMS Management Plan. The Management Plan provides the top level, integrative frame of reference for the AFIRMS Program. The plan focuses on the processes which provide technical and administrative control of AFIRMS. Key annexes to the Management Plan are the Evolutionary Implementation Plan, the Configuration Management Support Plan, and the Systems Interface Support Plan.
- d. System Specification. The AFIRMS System Specification adds the design requirements to the functional concepts in the FD. It divides the system into subsystems: HQ USAF, HQ USAF (MAJCOM), and Wing (unit). The system specification also assigns functions required within each subsystem. The system specification details the overall architecture, intersite interface gateways, processing logic flows and the communications network specifications.
- e. Subsystem Specifications. There are three AFIRMS subsystem specifications: HQ USAF, HQ USAF (MAJCOM/numbered Air Force), and the Wing (unit/wing/squadron). Subsystem specifications detail the

specific design and/or performance requirements of the system at that level. Design details cover the architecture, required functions, the functional users, intrasite interface gateways, and applicable processing logic flows.

- f. Database Specifications. There are three AFIRMS database specifications: HQ USAF, HQ USAFE (MAJCOM/numbered Air Force), and Wing (unit/wing/squadron). These specifications describe the database architecture, size, and content, as well as logical data relationships for the functions performed at each of the AFIRMS levels.
- g. Data Requirements Document (DRD). The DRD identifies, categorizes, and groups the generic types of data used in AFIRMS. It also defines each type of AFIRMS data element (attribute class).
- h. Product Descriptions (PDs). The PDs visually portray the products which implement the AFIRMS functions as input and output tools.
- i. Transform and Model Descriptions. The Transform and Model Descriptions document defines how AFIRMS calculates the output data from the input data. Specific algorithmic calculations are provided. Logical groups of algorithms forming AFIRMS models and transforms are described.

SECTION 3. SUMMARY OF THE AFIRMS MANAGEMENT PLAN

3.1 Concept. The technical management of AFIRMS consists of two elemental components (configuration and execution) and a synchronizing mechanism (the Evolutionary Implementation Plan). All AFIRMS management activities relate to one of these components. The Evolutionary Implementation Plan (EIP) provides the connectivity for the various activities within these two components of AFIRMS management.

Responsibility for these components is assigned to different offices in order to reduce the range of issues that must be handled by any one office and also to provide both a strategic and a tactical focus to AFIRMS management. The Office of Primary Responsibility (OPR) ensures the accomplishment of all the management efforts necessary to configure AFIRMS. These efforts are broadly grouped within two of four functions of AFIRMS management: planning and organizing. The Program Management Office (PMO) is responsible for all of the efforts necessary to execute the AFIRMS Program. Such efforts are grouped within one of the other two functions of AFIRMS management: directing and controlling.

3.2 Program Organization. Management of AFIRMS is accomplished within an organization consisting of the Office of Primary Responsibility (OPR), the Program Management Office (PMO), an AFIRMS Steering Committee which also serves as the AFIRMS Configuration Control Board (CCB), a group of AFIRMS Program Action Officers (PAO's), and Configuration Requirements Committees (CRC) at each participating major command as well as at the Air Staff. Since AFIRMS is an evolutionary implementation, the PMO is initially responsible for both system development and for system operation. Upon completion of the EIP, transfer of program management responsibility is accomplished from the PMO to the system manager of the supporting command in accordance with AFR 800-4. During the EIP period, the PMO depends upon a System Operation Program Action

Officer for day to day operation of operational AFIRMS. Figure 3-1 depicts the organizational structure of the AFIRMS program management. The assignment of responsibility for these AFIRMS organizational roles is shown below.

- Office of Primary Responsibility: AF/XOO,
Air Force Directorate of Operations
- Program Management Office: AF/SISC
Air Force Standard Information
Systems Center

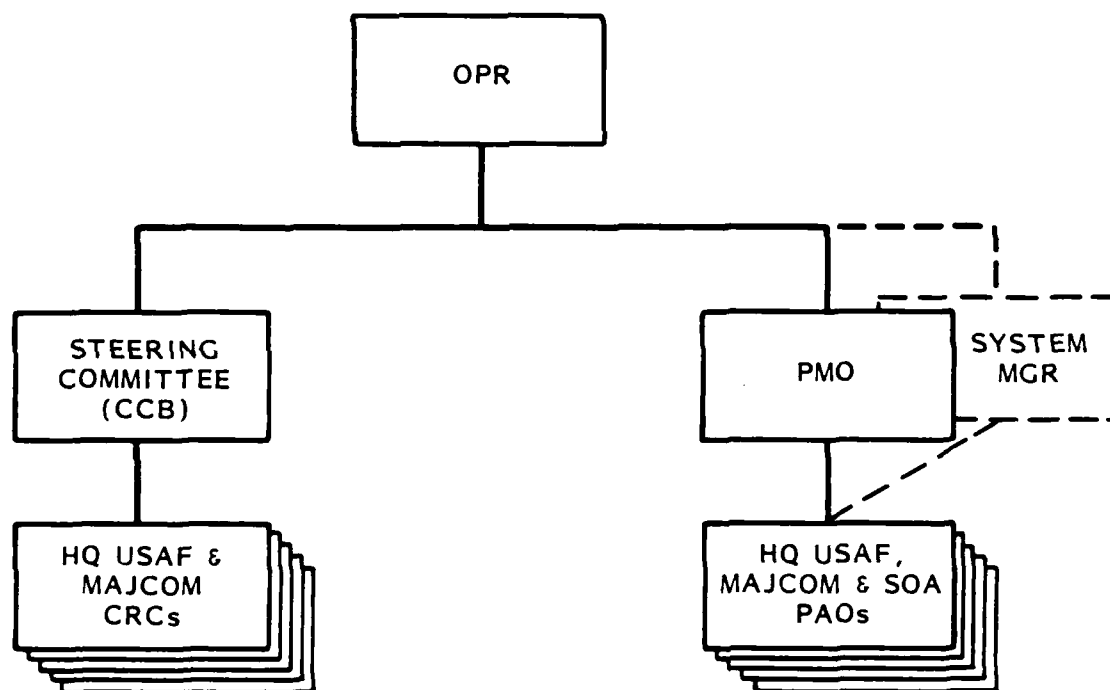


Figure 3-1. AFIRMS Program Functional Organization

- AFIRMS Steering Committee:

CHAIRMAN: Office of Primary Responsibility	AF/XOO
DEPUTY CHAIRMAN: Program Management Office	AF/SISC
MEMBERS: Program Action Officer for:	

USAF PLANS AND OPERATIONS	AF/
USAF INFORMATION SYSTEMS	AF/SI
AIR FORCE LOGISTICS COMMAND	AFLC/
AIR FORCE RESERVE	AFR/
AIR NATIONAL GUARD	ANG/
ALASKAN AIR COMMAND	AAC/
MILITARY AIRLIFT COMMAND	MAC/
PACIFIC AIR FORCES	PACAF/
STRATEGIC AIR COMMAND	SAC/
TACTICAL AIR COMMAND	MAC/
U.S. AIR FORCES, EUROPE	USAFE/

- AFIRMS Program Action Officers:

Each Steering Committee member	(as above)
OPR of each functional system for	(listed in
AFIRMS interface	Annex D)
Configuration Management	_____
Systems Interfaces	_____
Training	_____
Maintenance	_____
Security	_____
Acquisition/Contracts	_____
Manpower	_____
Quality Assurance	_____
System Operation	_____

- AFIRMS Configuration Requirements Committees

CHAIRMAN: Program Action Officer	
of the Participating Command	_____
MEMBERS: Representative of each participating	
subordinate organization	_____

In addition to this management team, the AFIRMS team includes the organizations which actually build AFIRMS. These builders are AFIRMS Agents. There are two types of agents:

- Separate Operating Agencies (SOA) of the Air Force
- Contractors

3.3 Management Functions. Managing AFIRMS is complicated by the evolutionary nature of the AFIRMS implementation concept. AFIRMS management faces complex coordination, interface and control requirements for an AFIRMS implementation which extends over a number of years and which includes functional requirements that cannot be fully defined in advance for all the major commands without excessively delaying AFIRMS implementation. Management of AFIRMS in this environment is four dimensional:

- Participating Air Force Major Commands
(the number of MAJCOMs to be implemented)
- Depth of MAJCOM participation
(the number of command levels implemented within a MAJCOM)
- The range of AFIRMS functional modules or products
(the number of different functions accomplished by AFIRMS)
- The depth of AFIRMS products
(the number of different versions of an AFIRMS function)

The AFIRMS Management Plan describes how this four dimensional effort is planned, organized, directed, and controlled. Each of the four management functions has a different perspective on the four dimensions of AFIRMS management. For example, the objective of the planning activities is to prescribe the AFIRMS envelope, the strategic issues of "what is AFIRMS and where is AFIRMS going." At the other end of the management spectrum, the controlling function provides the answers to the "where is AFIRMS now" status questions. In between these poles, organizing AFIRMS provides the "how does AFIRMS get there from here" (the Evolutionary Implementation Plan) and directing AFIRMS provides the "turn the AFIRMS crank" to accomplish the next block of Evolutionary Implementation Plan. Figure 3-2, Management Time Focus, depicts the AFIRMS Management Process. The four management functions (planning, organizing, directing, and controlling) are used to organize the tasks and processes necessary to AFIRMS that are detailed in the following sections.

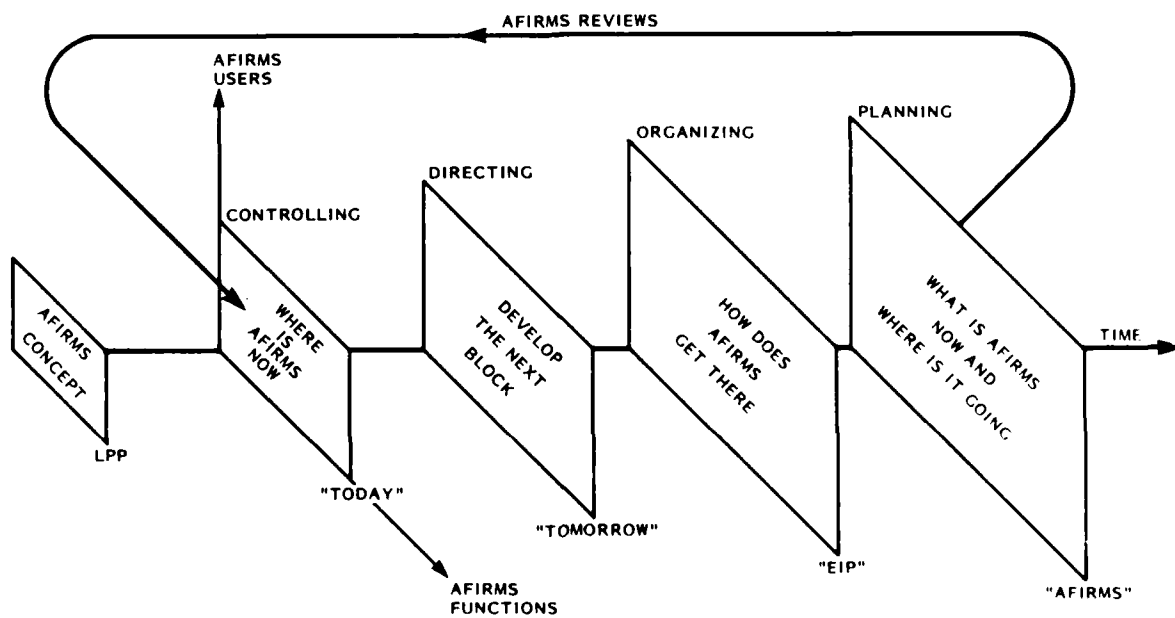


Figure 3-2. Management Time Focus

SECTION 4. PLANNING AFIRMS

Planning AFIRMS identifies what AFIRMS is and where AFIRMS is going.

4.1 Planning Objectives. The objectives of AFIRMS planning are to:

- Establish and maintain the boundaries of the AFIRMS program.
- Establish and maintain the Functional Baseline of AFIRMS.
- Specify the Air Force systems with which AFIRMS is to interface.
- Define and prioritize the AFIRMS functional modules and system interfaces.

4.2 Office of Primary Responsibility. The Office of Primary Responsibility (OPR) is the Air Force Directorate of Operations (AF/XOO). The OPR has overall responsibility for the accomplishment of AFIRMS. This responsibility is fulfilled through exercise of OPR authority to plan and organize AFIRMS. In the planning function, the OPR, as the chairman of the Steering Committee and the Configuration Control Board, has final authority over the definition of, and functional requirements for, AFIRMS.

4.3 Steering Committee. The AFIRMS Steering Committee provides user input at the highest level of AFIRMS planning activities. The Steering Committee is composed of the OPR, the PMO, the HQ USAF Program Action Officer, the AF/SI Program Action Officer, and Program Action Officers from each participating major command. The OPR prepares the agenda for the Steering Committee Meeting. Committee members participate in the definition of the AFIRMS Functional Baseline and coordinate the functional baseline for concurrence at their respective commands. They present the positions, requirements, and recommendations of their respective commands or offices based upon the results of their Configuration Requirements Committee meetings. The HQ USAF PAO has the same responsibilities for the Air Staff AFIRMS user community that the MAJCOM PAOs have for AFIRMS users within their respective commands.

4.3.1 Program Management Review. Review of the AFIRMS program is accomplished via quarterly System Status Reviews (SSR) conducted by the AFIRMS Program manager. These reviews keep the AFIRMS participants abreast of current progress within the Evolutionary Implementation Plan. The members of the AFIRMS Steering Committee attend these quarterly Systems Status Reviews in preparation for the Steering Committee meeting, which immediately follows each quarterly review.

4.3.2 Configuration Control Board. The Steering Committee also serves as the AFIRMS Configuration Control Board. Configuration issues are the first item of business on the agenda for each quarterly committee meeting. System level configuration issues such as AFIRMS architecture, technical standards, data dictionary, and intersite gateways are addressed by the full committee membership. Configuration issues which are limited to a MAJCOM or other AFIRMS segment are addressed before the Steering Committee Meeting by a subgroup of the Steering Committee consisting of the OPR, the PMO, the AF/SI PAO, and the MAJCOM PAOs affected by the configuration issue. The results of such subcommittee meetings are presented at the next full Steering Committee meeting.

4.3.3 Configuration Requirements Committee. The Program Action Officer (PAO) from each participating MAJCOM and HQ USAF are designated as chairmen of the Configuration Requirements Committee (CRC) for their organization. Each MAJCOM AFIRMS CRC functions as an Information Systems Working Group of the MAJCOM Information Systems Requirement Board (AFR 700-5). The HQ USAF CRC represents the various participating Air Staff offices. The HQ USAF Committee has the same functions and responsibilities for Air Staff Users that the MAJCOM Configuration Requirements Committees have for their respective users. The CRCs will consist of the PAO, a representative of each participating subordinate unit (or directorate in the case of the Air Staff) and such other members as the MAJCOM and OPR may wish to include. The CRCs meet quarterly, prior to the quarterly AFIRMS System Status Review meeting. The CRCs are

responsible for formulating recommendations to present to the Steering Committee concerning their AFIRMS requirements, their EIP Segment Plan, and any other matters of AFIRMS interest originating from users within their organizations.

4.4 Functional Baseline. The OPR, considering recommendations of the AFIRMS Steering Committee, is responsible for identifying the AFIRMS functional baseline configuration items and approving changes thereto. The Functional Baseline is the culmination of the AFIRMS planning process. Functional baseline configuration items consist of the inventory of AFIRMS functional hardware and software modules and certain AFIRMS documents. See Figure 5-1, AFIRMS Configuration Items, for a schematic representation of the Functional Baseline.

The Configuration Management Support Plan is the repository for the inventory of Functional Baseline configuration items. Descriptions of functional requirements for these modules may be found in the AFIRMS Functional Description document. Examples and discussions of those modules which were developed or implemented during the AFIRMS Learning Prototype Phase (LPP) are found in the AFIRMS Product Descriptions Document and the AFIRMS Transforms and Models Document. The Functional Baseline items are initially statements of functional requirements. These statements are developed into functional specifications and distributed over users to form the Allocated Baseline.

Four AFIRMS documents comprise the AFIRMS Functional Baseline. The Baseline documents listed below establish the basic charter of AFIRMS, define the boundaries of the AFIRMS program, identify the Air Force systems with which AFIRMS is to interface, identify and prioritize the functional modules of AFIRMS, and provide for support of AFIRMS development. The OPR is responsible for preparation of these documents.

- Information System Requirements Document (ISRDR)
- Management Plan
- Program Management Directive(s) PMD
- AFIRMS Functional Description (FD)

The AFIRMS functional modules and the documents specified above constitute the AFIRMS Functional Baseline. This baseline serves as the basic frame of reference for organizing, directing and controlling the AFIRMS program.

4.5 Configuration Identification.

AFIRMS configuration items are of five types:

- Functional (Product) modules
- Documents
- Product Code
- System Software
- System Hardware

One of the objectives of the AFIRMS Management Plan is to provide centralized control and decentralized execution of the AFIRMS program. AFIRMS is to be provided to each Air Force operational command (accommodating their individual requirements), with implementation extending over a number of years. At the same time AFIRMS must provide an Air Force wide combat capability assessment in addition to assessments at the MAJCOM and unit levels. These factors require central visibility over AFIRMS worldwide requirements during the evolutionary implementation. The large scope of the AFIRMS implementation requires a decentralized execution of AFIRMS implementation in order to achieve a worldwide AFIRMS capability that fits the actual requirements of the users as soon as possible. The modular approach to AFIRMS development provides the means by which the centralized control and decentralized execution can be accomplished. The fundamental element of this modular approach is the configuration item.

The OPR approves all functional and allocated baseline versions of configuration items. The PMO approves product baseline versions of the configuration items. Functional and allocated baseline configuration items consist of system documents and modules of AFIRMS functionality, both software and hardware. Product baseline configuration items consist of user documents, program code, system software, and hardware. Functional Baseline issues are contained in Section 4, Planning AFIRMS, while Allocated Baseline issues are in Section 5, Organizing AFIRMS, and Product Baseline issues are in Section 6, Directing AFIRMS.

Configuration items may be identified by the OPR to fulfill the essential functions of AFIRMS which are combat capability assessment and dollars to readiness assessments. In addition, the Program Action Officers, acting through the Steering Committee, may recommend other requirements necessary to support the basic AFIRMS functions for certification as configuration items. The OPR, considering the recommendations of the Steering Committee, assigns order-of-precedence priorities to each AFIRMS configuration item in order to focus resource allocation and development attention on the high priority AFIRMS requirements first.

4.5.1 AFIRMS Functionality Modules. A number of functions must be accomplished to effect the essential charters of AFIRMS (readiness assessment and dollars-to-readiness). The collection of these functions constitutes the AFIRMS functional baseline. Examples of functional modules which are configuration items are:

- AFIRMS Capability Assessment Model
- AFIRMS Dollars to Readiness Model
- Integrated Capability Assessment Display
- Process Status Display for Batch Processes
- AFIRMS Security Package
- Unit Status Display

- AFIRMS Tasking Model
- AFIRMS Resources Model
- AFIRMS Intersite Communication
- System Interfaces

The Configuration Management Support Plan (Annex C of this Management Plan) is the repository for the inventory of functional modules comprising the AFIRMS Functional Baseline.

Not all AFIRMS functional modules are needed by each AFIRMS user. Therefore, the distribution of modules over users provides relevant AFIRMS functionality where needed. This distribution of AFIRMS configurations items among the AFIRMS user community forms the AFIRMS Allocated Baseline. The Evolutionary Implementation Plan (EIP) is the repository for the AFIRMS Allocated Baseline, with each EIP Segment Plan containing the inventory of AFIRMS functional modules applicable to that particular AFIRMS segment.

Prototyping efforts may be used to assist in defining functional requirements or to explore options for achieving functional requirements. Such prototypes are controlled as a preliminary version of the configuration item being prototyped. Specifications and other documentation for these configuration items start with the detailing of the prototyping effort to be accomplished for the configuration item rather than the requirements for the configuration item's operational functional module.

4.5.2 AFIRMS Documentation. Certain key AFIRMS documents are designated as AFIRMS configuration items. All changes to these documents are subject to formal configuration change control procedures as detailed in the Configuration Management Support Plan, Annex C of this document. The following AFIRMS documents are designated as configuration items:

- Information System Requirements Document (ISRD)
- Program Management Directive(s) (PMD)
- Management Plan

specifically developed within AFIRMS. Operating systems, database management systems, compilers, and database servers are examples of system software which requires the same configuration management as the AFIRMS product (functional) modules. Support or system software items are included in the functional, allocated, and product baselines in the same manner as the AFIRMS functional product modules.

4.5.5 AFIRMS Hardware. Hardware functional modules are also controlled within AFIRMS configuration management baselines in the same manner as the AFIRMS product modules. Just as there is a set of software functional requirements in the Functional Baseline, so also there are equipment functional requirements. These equipment requirements are developed into functional and product specifications for use in procurement in the same manner as the AFIRMS software products.

- Functional Description
- System Specification
- Data Requirements Document
- Economic Analysis
- Evolutionary Implementation Plan Annex to the Management Plan (with Appendices)
- Transforms and Models Descriptions (with Annexes)
- Product Descriptions Document (with Annexes)
- Functional Specifications
- Subsystem Specifications (HQ USAF; MAJCOM; UNIT)
- Database Specifications (HQ USAF; MAJCOM; UNIT)
- Program Specifications
- Hardware Specifications
- Configuration Management Support Plan Annex to the Management Plan
- Systems Interface Support Plan Annex to the Management Plan
- Security Support Plan Annex to the Management Plan
- Training Support Plan Annex to the Management Plan
- Maintenance Support Plan Annex to the Management Plan
- Manpower Support Plan Annex to the Management Plan
- Users Manuals
- Operators Manuals

4.5.3 AFIRMS Program Code. AFIRMS program code for the functional products, both source and object code, is subject to configuration control. As the Allocated Baseline functional module configuration items are developed, tested and fielded, the various versions of the computer programs comprising those modules must be managed. The PMO is the approving authority for Product Baseline changes to functional module program code. Refer to Section 7, Controlling AFIRMS, for details on AFIRMS configuration item status accounting.

4.5.4 AFIRMS System Software. Computer software modules necessary to support AFIRMS functional products is also subject to configuration management, whether such software is commercially available "off-the-shelf" or

SECTION 5. ORGANIZING AFIRMS

Organizing AFIRMS identifies how AFIRMS is to be implemented.

5.1 Organizing Objectives. The objectives of organizing AFIRMS are to:

- Establish and maintain the AFIRMS Allocated Baseline.
- Specify the timing for AFIRMS interface with other Air Force systems.
- Assign AFIRMS functional modules to participating commands, with priority of implementation for each module.
- Establish and maintain the AFIRMS Evolutionary Implementation Plan (EIP).
- Provide the information necessary to prepare and defend the AFIRMS budget.

5.2 Office of Primary Responsibility. The Office of Primary Responsibility develops and maintains the AFIRMS Evolutionary Implementation Plan.

The OPR consolidates and coordinates the EIP Segment Plans for each MAJCOM as well as the Segment Plan for the Air Staff. After considering the recommendations of the PMO and the Steering Committee, the OPR approves the EIP and associated Segment Plans. The approved EIP constitutes the AFIRMS Allocated Baseline document.

5.3 Steering Committee. The role of the Steering Committee in organizing AFIRMS is to bring together all of the issues associated with the EIP so that they can be resolved in a comprehensive and coordinated manner. The Steering Committee members contribute to the EIP preparation by representing the views, needs, and priorities of their respective MAJCOMs or offices. A draft EIP is prepared by the OPR based upon the inputs of the Steering Committee members, budgetary considerations, and overall system priorities. The committee members coordinate the draft EIP (as the proposed Allocated Baseline) at their respective commands prior to final approval by the OPR.

5.4 Allocated Baseline. The AFIRMS Allocated Baseline is embodied in the AFIRMS Evolutionary Implementation Plan (EIP), Annex B of the Management Plan, published under separate cover. The OPR is responsible for preparation and coordination of the Evolutionary Implementation Plan (EIP). The Program Action Officer (PAO) for HQ USAF and each major command (MAJCOM) is responsible for preparation and coordination of their respective Segment Plan within the Evolutionary Implementation Plan. The EIP is revised annually to reflect the results of the Planning, Programming and Budgeting System (PPBS) cycle. The OPR is the approving authority for the EIP and its component Segment Plans.

The EIP is the repository for the results of AFIRMS organizing efforts. It contains an index of Allocated Baseline software configuration items as well as the plan for deriving and implementing the Product Baseline. Each Segment Plan contains the index of Allocated Baseline software items relevant to that segment of AFIRMS. The index provides a reference to the AFIRMS master library documents pertinent to each Configuration Item. The Allocated Baseline for an AFIRMS segment may be partitioned into blocks of functionality which are detailed and implemented over time within the evolutionary implementation concept of AFIRMS implementation. However, all Allocated Baseline functional configuration items are scheduled over the implementation blocks of each segment plan. The EIP serves as the basic frame of reference for directing and controlling the AFIRMS program. Specifically, the Allocated Baseline embodied in the EIP establishes the overall AFIRMS system architecture by mapping the Functional Baseline Configuration Items to the user community.

5.5 Configuration Control. The AFIRMS Steering Committee serves as the AFIRMS Configuration Control Board. As Chairman of the Steering Committee, the OPR is also Chairman of the Configuration Control Board. The Configuration Control Board is responsible for the systematic evaluation, coordination, approval and implementation of all changes to functional and

allocated baseline configuration items after they are identified as a configuration item in the planning process. The PMO has the same responsibilities for the Product Baseline and, additionally, prepares a summary report of all such changes for the quarterly System Status Review meetings. The configuration item is the mechanism for, and the Allocated Baseline the result of, organizing AFIRMS.

5.5.1 AFIRMS Software and Hardware. AFIRMS functional modules are allocated to the user community as AFIRMS is organized over participating Air Force commands. AFIRMS functional modules are assigned based upon user needs. Not all modules are necessarily required by each user. However, all AFIRMS modules are allocated to at least one user.

Functional requirements identified for each module during the AFIRMS planning process are expanded into detailed functional specifications during the organizing of AFIRMS in preparation for development of the product specifications. In some cases, the detailed requirements may vary between users allocated the same AFIRMS functional module. These variations are typically accommodated in a functional module by providing user established variables in a set of parametric tables. Each different set of such user table values constitutes a variation of the functional module. When user accommodation is not feasible using these parametric tables, a separate version of the functional module is provided. In either case, the configuration status accounting system must provide central visibility of these module differences at the Product Baseline level in order to maintain the data integrity of the AFIRMS assessment aggregations as well as to facilitate central analysis and resolution of system problems.

Therefore, in organizing the AFIRMS Configuration Baselines, the Configuration Status Accounting System provides for tracking of configuration items to the version/variation level of detail as well as to the using commands and functional users within the using command. Thus, at the highest (planning) level, status accounting for the Functional Baseline is merely an

inventory of configuration items, that is, functional modules without version variability and without assigned users. At the next highest (organizing) level, status accounting for the Allocated Baseline adds the inventory of users to each functional module. Finally, at the lowest Configuration Status Accounting (directing) level, the Product Baseline adds the inventory of module versions and variations (including their component program code). A graphic depiction of this configuration item organization is shown in Figure 5-1, AFIRMS Configuration Items. The PMO is responsible for establishing and operating an AFIRMS Configuration Status Accounting System which will accomplish these requirements.

AFIRMS system configuration control is handled exactly the same as the AFIRMS functional software discussed above. For system software, the functional modules identify system functions rather than AFIRMS functions. Examples of these system functions are a data base management system, a security/access control function, a network communication function, and an operating system.

5.5.2 AFIRMS Documentation. Additional documents also result from the AFIRMS organizing efforts. The OPR is responsible for development of the following documents which comprise the documentation portion of the Allocated Baseline:

- System Specification
- Evolutionary Implementation Plan Annex to the Management Plan (with Appendices)
- Economic Analysis
- Transforms and Models Descriptions
- Product Descriptions (with Annexes)
- Functional Specifications
- Data Requirements Document
- Configuration Management Support Plan Annex to the Management Plan
- Systems Interface Support Plan Annex to the Management Plan
- Security Support Plan Annex to the Management Plan
- Manpower Support Plan Annex to the Management Plan

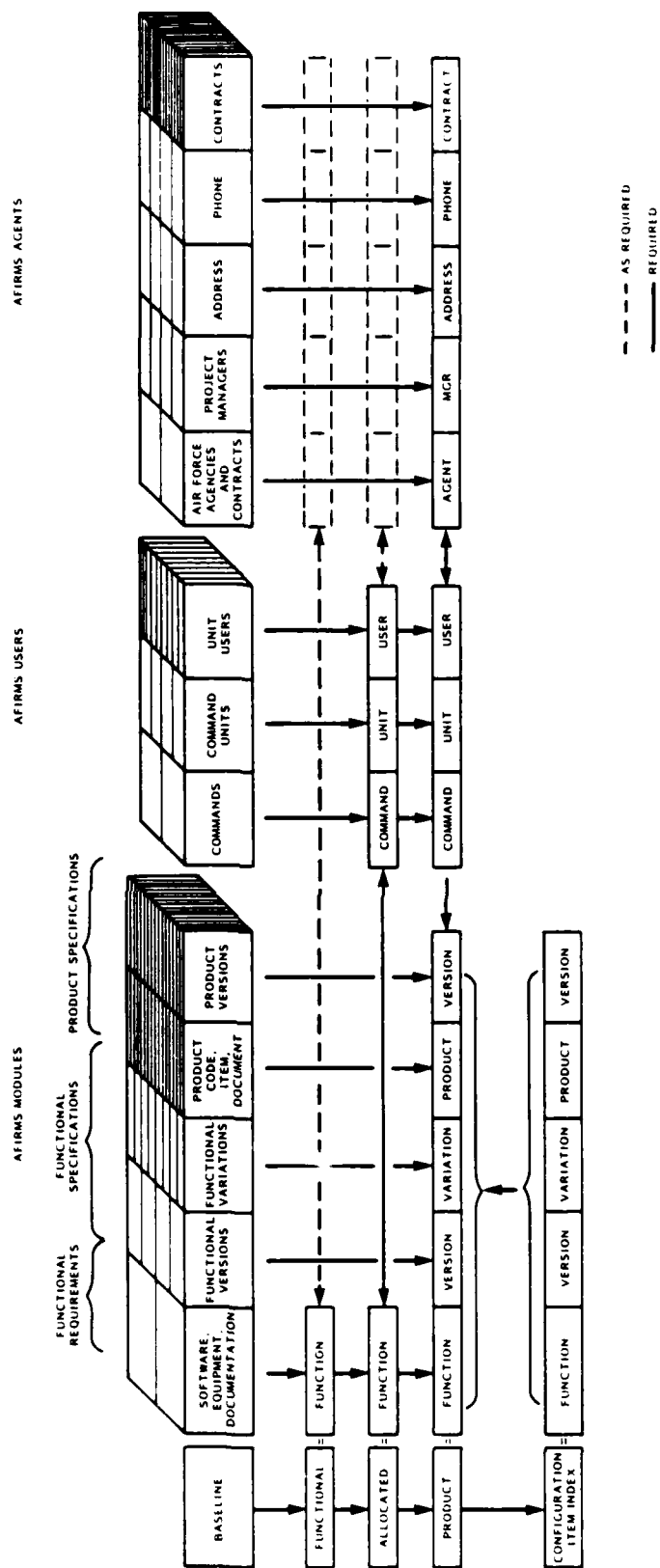


Figure 5-1. AFIRMS Configuration Items

SECTION 6. DIRECTING AFIRMS

Directing AFIRMS accomplishes the next step in the EIP.

6.1 Directing Objectives. The objectives of directing AFIRMS are to:

- Establish and maintain the AFIRMS Product Baseline
- Execute the Evolutionary Implementation Plan
- Report status of the Evolutionary Implementation Plan

6.2 Program Management Office. The PMO develops, installs and updates AFIRMS during the Evolutionary Implementation Plan period. At the conclusion of the EIP period, responsibility for AFIRMS (as an Air Force Standard System) is transferred to the appropriate Air Forces systems agency for support and maintenance. The Program Management Office (PMO) is responsible for ensuring that appropriate work orders are issued to execute the elements of the EIP. The PMO executes the Evolutionary Implementation Plan (EIP) through AFIRMS agents such as the Program Action Officers, in-house Air Force agencies and contractors. Work orders for in-house Air Force agencies are issued as Program Management Directive supplements in accordance with the requirements of AFR 800-2. Work orders for contractors are issued in accordance with Air Force contracting procedures.

6.3 Execution of AFIRMS. As AFIRMS executive, the PMO is responsible for ensuring that each EIP allocated baseline action item has an agent assigned and performing in accordance with the implementation schedules of the EIP, particularly the detailed schedules within each EIP segment plan. The Evolutionary Implementation Plan (EIP) is the master build plan for AFIRMS. It is organized in segments, one for each MAJCOM and one for HQ USAF. Each segment has a detailed breakdown of the implementation plan for the hardware, software, and documentation functional baseline configuration items allocated

to that segment. Subsets of these baseline configuration items may be implemented as functional blocks over time. Each of these block implementations is accomplished in a series of phases: analysis, development, installation, operation and integration management. Refer to Annex B, Evolutionary Implementation Plan, published under separate cover, for details of EIP organization and responsibilities.

The nature of the Evolutionary Implementation Plan provides maximum flexibility to the PMO for executing AFIRMS since AFIRMS Agents can be assigned to accomplish almost any set of work tasks. Thus, the PMO may issue work orders (in-house or contractor) for an entire segment of AFIRMS and all its component configuration items over all blocks of the segment to execute all phases of each block. For example, the PMO may assign a work order to have a single executive agent (say, the USAFE PAO) accomplish the entire USAFE AFIRMS Segment. Or, at the other extreme of the work assignment spectrum, the PMO may issue a work order for an individual work phase for a particular configuration item in a particular block of a particular segment. An example might be the assignment of a particular executive agent (e.g., a contractor) to accomplish the requirements analysis phase for one configuration item (e.g., the capability assessment model configuration item) within the first block of one AFIRMS segment (e.g., the MAC segment). There are numerous options for executing AFIRMS between these two extremes. The PMO can therefore direct the best combination of resources at the various components of AFIRMS execution. For example, analysis and development phases of all AFIRMS modeling/simulation configuration items over the entire Allocated Baseline might be competitively awarded to the contractor with the best cost effective technical solution/approach to capability assessment and dollars-to-readiness modeling.

HQ USAF and MAJCOM PAOs assist the PMO in assigning responsibilities for their respective segment plans. The PAOs represent the requirements, suggestions and preferences of their commanders and constituent users to the PMO for consideration in the preparation of the segment Product Baseline.

6.3.1 AFIRMS Agents. The AFIRMS team includes the OPR (for Functional and Allocated Baseline development), the PMO (for Product Baseline development) and internal Air Force agencies or contractors for Functional and Product Baseline implementations. The OPR and the PMO are AFIRMS managers. Air Force agencies, contractors, and the PAO for each MAJCOM and for HQ USAF are implementing agents. The PMO may issue work orders to AFIRMS Agents (either Air Force agencies or contractors) to support AFIRMS managers (OPR and PMO) in fulfilling their task responsibilities. For example, the development of the functional specification for a functional baseline item (an OPR responsibility) may be contracted for accomplishment or it may be developed by an internal Air Force agency. In either case, the PMO would have the AFIRMS Agent work directly with the OPR since the work relates to an OPR responsibility--the Functional Baseline. Likewise, the central AFIRMS Program Library might be maintained for the PMO under contract, or it may be maintained by an appropriate Air Force Agency, or under contract for an appropriate Air Force agency. Figure 6-1, AFIRMS Management Schema, shows the operating relationships among AFIRMS agents.

6.3.2 Execution Actions. In the concept of the EIP and this management plan, there are two basic types of actions necessary to implement AFIRMS: implementative and administrative. The management plan defines and assigns administrative and associated support task responsibilities. The Evolutionary Implementation Plan defines and assigns detailed analysis, development, installation and operations task responsibilities. Both Functional Baseline and Product Baseline actions (such as functional and product specification development) are included in the EIP. Since the OPR and PMO staffs are small, virtually all of the implementation actions are accomplished through PMO tasking of AFIRMS Agents. These agents accomplish Allocated Baseline Configuration Items within the phases of one or more blocks of a Segment Plan. In the Analysis Phases of allocated baseline work set forth in the EIP, the OPR is the authority for all Functional Baseline tasks while the PMO is the technical authority for the Product Baseline. The PMO is the technical authority for the Development, Installation, and Operation Phases of the segment implementations while the OPR is the authority for the Integration/Management Phases.

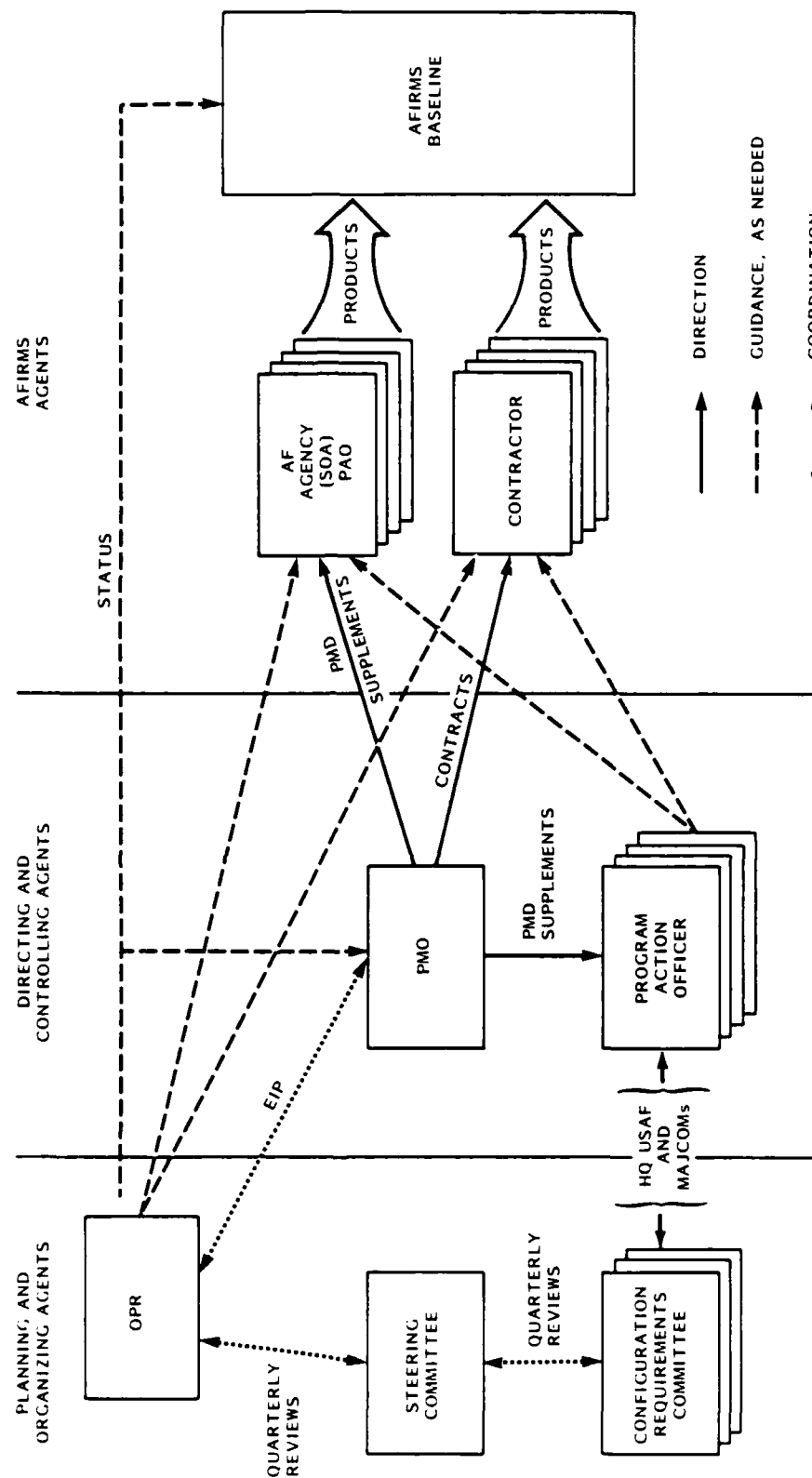


Figure 6-1. AFIRMS Management Schema

It may be necessary for the OPR and/or the PMO to have AFIRMS Agents accomplish many of the administrative actions. Actions that might be accomplished by executive agents include maintaining the configuration item baseline indexes (Functional, Allocated, Product), operating the Configuration Status Accounting System, maintaining the master AFIRMS Program Library, developing Management Plan Support Annexes, maintaining an AFIRMS testbed system or performing other efforts beyond the capacity of the OPR or PMO staffs.

6.3.3 Execution Status. The PMO conducts quarterly System Status Reviews so that the entire AFIRMS management team may review program progress. The PMO prepares the agenda to ensure review of implementation aspects embodied in the EIP and the administrative aspects embodied in the Management Support Plan with its support annexes as well as budgetary status. This agenda includes, as a minimum:

- Program Management Milestones Schedule
- Functional Baseline Status
- Allocated Baseline Status
- Product Baseline Status
- Status of Support Plans (and their execution)
- Master EIP Schedule
- EIP Segment Schedules
- Budget Status and Projections
- Summary of Problems (both program and system problems with corrective actions)

6.4 Product Baseline. The PMO develops, approves and executes the Product Baseline. This baseline is derived from the Allocated Baseline, which distributes Functional Baseline Configuration Items over AFIRMS segments and over time as reflected in the EIP. The Product Baseline includes the set of

software and hardware product specifications necessary to accomplish the AFIRMS functional requirements as well as user oriented documents. The Product Baseline is indexed by the most complete form of the Configuration Item Index (CII) number (i.e., entries in all components of the CII number) together with the AFIRMS user designation, as shown in Figure 5-1. Note that the program management information for the AFIRMS Agent assigned to a Product Baseline Configuration Item is associated with Product Baseline CIIIs. Therefore, in effect, the product baseline includes the AFIRMS Agent responsible for accomplishing each component configuration item.

The certification of the Product Baseline is accomplished by the Quality Assurance (QA) AFIRMS Agent whose representative on the AFIRMS management team is the QA PAO. Details of Product Baseline certification procedures are contained in Annex C, Configuration Management Support Plan.

6.5 Configuration Control. The PMO is the Product Baseline Configuration Approval Authority. The PMO is therefore responsible for systematic evaluation, coordination, approval and implementation of all changes to the Product Baseline. The PMO also consolidates and prepares proposed changes to the Functional or Allocated Baselines for disposition by the Configuration Control Board. The PMO is also responsible for AFIRMS "build" releases and for releases and revisions of AFIRMS or vendor software and hardware items. Such release constitutes authority to proceed with the installation of the build or a revision at AFIRMS user sites. Such installations are controlled within the Configuration Status Accounting System. The Product Baseline Configuration Items of AFIRMS consist of computer software and hardware specifications, certain additional documents, equipment, and software code.

6.5.1 Software. The PMO develops product specifications for each software functional specification contained within the Allocated Baseline. Both functional (user) and system (support) software is then developed or procured "off the shelf" based upon these product specifications. The software is unit

tested and, after QA certification, installed by the PMO or by an AFIRMS Agent responsible to the PMO. See Section 6.4 and Annex C, Configuration Management Support Plan, for QA certification responsibilities and procedures.

6.5.2 AFIRMS Documentation. AFIRMS directing efforts add additional documentation configuration items to the AFIRMS Configuration Item Index. The PMO is responsible for producing these documents. Documents forming the documentation portion of the Product Baseline are:

- Subsystem Specifications (HQ USAF, MAJCOM, UNIT)
- Database Specifications (HQ USAF, MAJCOM, UNIT)
- Program Specifications
- Hardware Specifications
- Training Support Plan
- Maintenance Support Plan
- Users Manuals
- Operators Manuals

6.5.3 Hardware. The PMO translates the functional specifications, which were prepared as part of the Allocated Baseline, into product specifications. The requisite hardware is then procured in synchronization with the EIP installation schedules. Maximum utilization is made of existing Air Force standard procurement sources. Installation, check out and turnover then proceed in accordance with the plans established in the appropriate installation phase of the EIP Segment Plan.

6.6 Technical Direction. The PMO is responsible for technical direction of the AFIRMS program. For contractor AFIRMS Agents, this direction is accomplished through normal contracts procedures which are coordinated by the AFIRMS Acquisition/Contracts Program Action Officer (PAO). (See Section 3.2,

Program Organization.) For in-house Air Force Agencies or commands, PMO direction is accomplished through the Program Management Directive mechanism and supplements thereto.

Responsibility for technical guidance necessary to effect actions directed by the PMO may reside with another member of the AFIRMS management team. In such cases the PMO directives will identify the functional authority from which the AFIRMS Agent will receive technical guidance. For example, AFIRMS Agents directed by the PMO to accomplish tasks relating to the Functional Baseline or Allocated Baseline will receive technical guidance from the OPR rather than the PMO. In any case, the PMO is responsible for the initiating instructions to effect the requirements of the Evolutionary Implementation Plan.

SECTION 7. CONTROLLING AFIRMS

Controlling AFIRMS provides visibility of the current status of AFIRMS.

7.1 Controlling Objectives. The objectives of AFIRMS controlling activities are to:

- Monitor AFIRMS implementation status
- Provide centralized AFIRMS record keeping
- Administer the AFIRMS Configuration Status Accounting System
- Provide information necessary to support AFIRMS contracts administration
- Provide for technical oversight of both in-house and contractor AFIRMS technical activities

Technical control of AFIRMS is achieved through operation of the AFIRMS Program Library, through AFIRMS Configuration Status Accounting, through Configuration Change Control procedures, through Configuration Status Auditing and through technical review of in-house or contractor activities.

7.2 AFIRMS Program Library. The PMO is responsible for managing the program library. Since the implementation of AFIRMS will be an evolutionary process, AFIRMS configuration as it exists at one site will not necessarily be in the same evolutionary stage as the configuration existing at another site. A program library contains copies of all Product Baseline software releases or versions (both source and executable code) which have been installed at any site. This program library also contains a copy of all studies, analysis efforts, white papers, regulations, manuals, specifications, and other documents pertinent to AFIRMS or to its historic evolution. A copy of each iteration of each document contained in the AFIRMS Functional, Allocated, and Product Baselines is also maintained in the library. All baseline documents, software releases, and hardware documentation are indexed by Configuration Item

Index number. Other documents are similarly indexed when they are applicable to particular Functional, Allocated, or Product Baseline Configuration Items. The central program library allows for the staged evolutionary implementation while accommodating specialized variations at individual sites. This approach supports centralized problem research, analysis, and correction.

7.3 AFIRMS Configuration Status Accounting System (CSAS). A configuration status accounting function provides a mechanism for maintaining a record of how the system has evolved and the status of the system at any time relative to what appears in the Functional, Allocated and Product baseline documentation. The Accounting System is indexed by AFIRMS Configuration Item Index numbers (the structure of which is discussed in Section 5) for software, hardware, and documentation. Status accounting involves tracking and reporting the status of all components of the AFIRMS system, software, hardware, and documentation. It is the essential means whereby the configuration control activities are recorded. Since the worldwide operational AFIRMS configuration management problem is very complex, the PMO must automate this function.

The PMO is responsible for the design, implementation and operation of the status accounting system for AFIRMS. The OPR approves the design of the AFIRMS Status Accounting System. Assigned Program Action Officers work with data base engineers to develop and implement the status accounting data base and to formulate the procedures for updates and report generation. The status accounting system tracks the configuration of system functional modules in use at each site (Functional and Allocated Baselines), as well as the particular program code, equipment, and documentation supporting those modules (Product Baseline).

The Configuration Status Accounting System provides an automated mechanism for tracking the overall status of the evolutionary implementation. The current AFIRMS baselines and all requests for changes are recorded and tracked. Current status and historic audit trails of all sites and baseline documents are maintained in the configuration status accounting data base.

7.4 Change Control. Change control, as part of the Configuration Status Accounting function, monitors requested changes to all AFIRMS configuration baselines from initiation through final disposition. The objective of change control is to ensure that changes modify the configuration only in ways desired, approved and budgeted. This is accomplished by the use of procedures for the proposal, evaluation, approval, implementation, and documentation of all changes. Change control provides an orderly approach to software change, including:

- mechanisms for changing configuration items
- recording and tracking of change requests (including present status of the request)
- recording of actual changes made
- linking change documentation to the actual software or hardware changes
- configuration item change release control
- identifying related configuration items that may be effected by a proposed change

Problem/change reporting procedures and forms provide visibility and control over the processing of reported errors in, and proposed changes to, the software system. These procedures and forms are designed to ensure sufficient control while providing flexibility to correct or upgrade system design, hardware, software and operation. These procedures provide adequate information for proper evaluation and tracking, yet do not require an unreasonable effort or cause excessive delay in identifying problems or change requests.

7.4.1 Problem/Action Reports (PAR). Reporting and review of problems and recommendations are accomplished through the use of Problem/Action Reports (PARs) and Engineering Change Proposals (ECPs). PARs are generated by development, test, or user personnel to report errors or discrepancies

experienced with software, documentation, or tests. PARs are also used as a mechanism to submit suggestions for improvements to AFIRMS. An initial evaluation of the significance of the PAR and the urgency of solution is recorded on the PAR by the originator. The completed PAR is submitted to the AFIRMS Program Action Officer (PAO) responsible for the AFIRMS Segment serving the originator. The PAO, in coordination with, and with the approval of, the PMO makes a preliminary determination for disposition of the PAR. If no further action is appropriate or the PMO approves the PAR, the PAO refers the PAR to the appropriate activity for action and forwards a copy to the PMO for incorporation into the Configuration Status Accounting System. Otherwise, the PAO forwards the PAR to the PMO for disposition.

In general, the PMO is authorized to approve PARs relating to the Product Baseline, only. All other PARs are referred to the Configuration Control Board (i.e., the Steering Committee) for disposition. However, if the problem reported is severe enough to cause system failure or significant processing error, the PMO will consult with the OPR and take immediate action for an interim solution regardless of the affected baseline. A quarterly status report of all PAR actions is prepared by the PMO for each quarterly System Status Review meeting.

PARs relating to the Functional or Allocated Baselines are evaluated by the PMO and solutions formulated for presentation to the CCB in the form of an Engineering Change Proposal (ECP). The PMO may also refer PARs involving the Product Baseline to the CCB as an ECP. Engineering Change Proposals are approved or disapproved by the CCB and returned to the PMO for action.

All approved ECPs changing or enhancing the Functional or Allocated Baseline and all routine, non-critical approved Product Baseline PARs are placed in the appropriate baseline queue to be incorporated in the next revision of the EIP. Thus, implementation of changes and routine system fixes are accomplished within the normal EIP Segment planning process. Minor AFIRMS patches and new system software versions which are wholly within the Product Baseline may be issued periodically by the PMO.

7.4.2 Engineering Change Proposals (ECP). For ECPs approved by the CCB, the Configuration Status Accounting System (CSAS), and AFIRMS program library facilities are used to implement and test the modification. Appropriate changes to program code and documentation are then made. Release of the modification is accomplished under CSAS control after release by the AFIRMS Quality Assurance agent.

Through the Configuration Status Accounting System, every site's current configuration is tracked. Using the centralized AFIRMS program library, the configuration as it currently exists at any given site can be recreated at a central site for software engineer use. This allows a central team of engineers, working from specifications and baseline code to accomplish modifications for any particular application with minimal need for travel. Modifications, once made, can then be routed to the appropriate sites with the configuration status accounting data base updated accordingly. The modification is not released until the AFIRMS Quality Assurance agent verifies that the approved change has been accomplished and all documentation changes written. After QA verifies the approved change, it is released for incorporation into the next baseline or inclusion in a patch release, as appropriate, with all changes to hardware, software and documentation components of the modification coordinated within the Configuration Status Accounting System.

Status accounting information tracks the progress of all approved changes to the configuration, including entries for the date of ECP submittal, date of ECP approval, engineers assigned, expected data of completion, current status and expected date for inclusion in baseline.

7.5 Auditing Configuration Status. Configuration audits are held in order to ensure that software, hardware, and documentation which have been developed fully meet AFIRMS performance requirements. Developmental configuration audits, both functional and physical, are accomplished by the PMO. The

purpose of these audits is to check the technical documentation against actual code being delivered to ensure that it has been developed in accordance with the baseline configuration document specifications. Installation audits are the responsibility of the Quality Assurance PAO. The installation audits provide a verification of the field installation which is independent of the user and the developer.

Configuration audits also apply to modification of AFIRMS. As changes are made to AFIRMS software, hardware, and documentation, tests are conducted to ensure that the changes do not create problems in other areas and that the new code accomplishes the desired effect. These tests are accumulated within the AFIRMS program library.

Results of configuration audits are forwarded to the Configuration Control Board. Validation of AFIRMS development is not complete until the results have been approved by the CCB/Steering Committee.

7.6 Technical Control. The PMO is responsible for technical supervision of in-house development agencies and all contractors performing AFIRMS development or implementation tasks. To facilitate this technical supervision, information about the contractor or in-house development agency is incorporated into the Configuration Status Accounting System. Such information is cross-referenced to the configuration item under which the development or implementation effort is chartered. Essential contractor/agency information includes:

- Name of company or agency
- Name Project Manager
- Address of Project Manager
- Phone number of Project Manager
- Configuration Item Index Number(s)
- Contract Number(s), if applicable

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